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Clinico-Pathological Findings of Metalic and Non-Metallic Foreign Bodies in Dairy Cattle: A Review

Mersha Chanie and Desiye Tesfaye

Department of Veterinary Paraclinical Studies, Faculty of Veterinary Medicine,
University of Gondar, P.O. Box: 196; Gondar, Ethiopia

Abstract: Disorder of the gastrointestinal tract of the dairy cattle is common due to indiscriminate feeding behavior. An ingested foreign body by dairy cattle is divided in to two main groups. The first category is foreign bodies of non- metallic origin and the second category is metallic origin. Entrance and migration of foreign bodies through the body tissue leads to many complications that differ according to the nature and the ways of its entrances in to the tissue. Ingestion of foreign bodies is still extremely common in cattle especially in developing countries where the standard of animal management is unsatisfactory. Among many complication due to ingestion of foreign bodies, traumatic reticuloperitonitis (TRP) (hardware diseases) is the most common problems in dairy farm. TRP is relatively common disease in adult dairy cattle caused by the ingestion and migration of foreign bodies in the reticulum. Cattle with TRP has alteration of coagulation, hematological and biochemical parameters that has a paramount economic importance. For example, severe loss of milk production and high mortality rate. To address this problem, there are different diagnostic techniques devised such as rumenotomy, radiography and laparatomy. This review paper considers the clinico-pathological findings of metal and non- metal foreign bodies in dairy cattle as well as the different diagnostic and treatment options.

Key words: Blood Biochemistry · Clinico-Pathology · Foreign Bodies · Hematology · TRP

INTRODUCTION

Disorders of the rumen and fore stomach compartment in adult dairy cattle can result from variety of causes, including those that are dietary, inflammatory and/ or mechanical. The bovine species does not have highly sensitive prehensile organs such as lips and tonguesthat discriminating sense of taste. As a consequence, cattle kept in farm yards stables or at other sites close to human mechanical activities are prone to swallow metallic objects such as nails and pieces of wires that have been carelessly left in their feeding areas [1, 2].

Traumatic reticuloperitonitis (pericarditis) is relatively common diseases in adult dairy cattle caused by the ingestion of foreign bodies in the reticulum swallowed metallic objects such as nail or pieces of wire fall directly on the reticulum or pass into the rumen and subsequently carried over the rumenoreticular folds into the cranio-ventral parts of the reticulum. Contraction of the reticulum and pressure of the calf during late pregnancy or the efforts of parturition promote penetration of the wall by foreign objects. However, the development of severe sequelae to the penetration of the reticular wall depends on the characteristics of the foreign body as well as the direction and the extents of the penetration [3]. If the foreign body has penetrated the diaphragm and pericardium, affected cattle also can have muffled heart sounds, jugular pulse and brisket edema secondary to congestive heart failure caused by pericarditis [4].

Traumatic Reticuloperitonitis (TRP)

Etiology: Swallowed metallic objects such as nails or pieces of wires, fall directly into the reticulum or pass into the rumen and are subsequently carried over the ruminoreticulular folds into the cranioventral part of the reticulum rumen contraction. The reticulo-omasal orifice is elevated above the floor, which tends to retain heavy object in the reticulum and honey comb like-reticular mucosal surface traps sharp object. Compression of ruminoreticulum by the uterus in late pregnancy, straining during parturition and mounting during estrus increases

Corresponding Author: Mersha Chanie, Department of Veterinary Paraclinical Studies, Faculty of Veterinary Medicine, University of Gondar, P.O. Box: 196; Gondar, Ethiopia.

likelihood of an initial penetration of reticulum and may also disrupt adhesions caused by earlier penetration. Perforation of the wall of reticulum allows leakage of ingesta and bacteria which contaminates the peritoneal cavity. The resulting peritonitis is generally localized and frequently results in adhesions [5].

Epidemiology

Occurrences: Cattle are more likely to ingest foreign bodies than small ruminant since they don't use their lips for prehension and are more likely to eat a chopped feed. The majority of affected cattle (87%) are dairy cattle and 93% are older than two years of age. It is hypothesized that dairy cattle are more commonly affected than beef cattle since they are more likely to feed a chopped feed, such as silage or hay [5].

Influencing Factors: According to Schipper [6], there are a number of influencing factors. These includes; remodeling of livestock housing, careless handling of baling wires, pins, feed sack bags and wires, using old buildings sites for hay fields, often occur in female shortly after calving, often occur in male shortly after or during extensive uses for breeding, [1].

Pathogenesis

Ingestion of Foreign Body: Lack of oral discrimination by cattle leads to the ingestion of foreign bodies that would be rejected by other species. Swallowed foreign body may lodge in the upper esophagus and causes obstruction or in the esophageal groove and cause vomiting; but most instances they pass to the reticulum [2].

Penetration of Reticulum: If the reticular wall is injured without penetration to the serous surfaces no detectable illness occur and the foreign body may remain fixed. Most perforation occurs in the lower part of the cranial wall of reticulum but some occur laterally in the direction of the spleen and medially towards the liver. In the sites for long period and gradually be corroded away. Many foreign bodies may not remain embedded but are common only found free in the reticulum if surgery is carried out about 72 hours after illness commences [7].

Acute Local Peritonitis: The initial reaction to perforation is one of acute local peritonitis and depending on the severity of the local peritonitis. The ventral aspects of the reticulum becomes adherent to varying degrees to the abdominal floor and diaphragm. This result in decreased reticular motility and reticular abscess formation which is a common complication and may be located between the reticulum and the ventral body wall, between the reticulum and the right thoracic wall and between the reticulum and the spleen [8].

Generalized Peritonitis and Extension Diseases: Spread of the inflammation causing generalized or diffuse peritonitis may occur in the cows that calves at time of perforation and in cattle that are forced to exercise.Peritonitis results in toxemia, alimentary tract stasis, dehydration and shock [7]. During the initial penetration of the reticulum, the foreign body may penetrate beyond the peritoneal cavity and into the pericardial sacks or pleural. This may occur commonly in cows in advanced pregnancy than in non- pregnant cows. This is because of gravid uterus, although it is uncertain [7, 9].

Clinical and Pathological Findings

Clinical Findings in Case of Acute Local Peritonitis: Characteristically, the onset is sudden with complete anorexia and marked drop in milk yield usually to about one third or less of the previous milking [8]. Sub acute abdominal pain is common in most cases. The animal is reluctant to move and does so slowly walking; particularly downhill is often accompanied by grunting. Most animals prefer to remain standing for long periods and lie down with great care and arching of the back occurs in about 50% of cases, along with the appearances of tenseness of the back and the abdominal muscles so that the animal appears gaunt or "tucked up". Defecation and urination cause pain and the acts are performed infrequently and usually with grunting. This result in constipation scant feces and in some cases retention of urine [7].

Moderate systemic reaction is common in acute localized peritonitis. The temperature varies from 39.5-40°C and rarely higher, the heart rate is about 80/minute and the respiratory rate about 30/minute. The temperature above 40°C accompanied by heart rates greater than 90/minute suggesting severe complication. The respirations are usually shallow and if the pleural cavity has been penetrated, are painful and accompanied by audible expiratory grunt [2]. Rumination is absent and reticular and rumen movements are markedly depressed and usually absent and pain can be elicited by deep palpation of the abdominal wall just caudal to the sternum [3].

Clinical Finding in Case of Acute Diffused (Generalized) Peritonitis: Acute diffused peritonitis characterized by

the appearances of profound toxemic within a day or two of the onset of local peritonitis alimentary tract motility is reduced, mental depression is marked and temperature is elevated in severe cases. The heart rate increase to 100-120 minute and painful grunt may be elicited by deep palpation at almost any location over the ventral abdominal wall. This stages is usually followed by rapid collapse and peripheral circulatory failure and an absences of pain response terminally recumbence and depression are common [9].

Clinical Finding in Case of Chronic Local Peritonitis: In chronic peritonitis, the appetite and milk yield does not return to normal after prolonged therapy with antimicrobials. The body condition is poor, the faces are reduced in quantity and there is an increase in undigested particles. A persistent slightly elevated temperature is supportive evidences of the presences of a chronic inflammatory lesion. Clinical signs associated with chronic peritonitis include anorexia, unthriftiness, decreased milk production, rumen hypomotility and change in manure consistency [4].

Hematological Findings: Leukocytosis with left shift neutrophilia and increases in the concentration of fibrinogen and plasma proteins are common hematological finding in cattle with traumatic reticuloperitonitis/ pericarditis [3]. The total and differential leukocyte counts provide useful diagnostic and prognostic data [7]. In acute local peritonitis, neutrophils (mature neutrophils above 400/ul) are common (immature neutrophils above 200/ul) are common. This is regenerative left shift [10]. Significant increase in total leukocyte (WBC), in the percentage of neutrophils and decrease in the percentage of lymphocytes are common hematological findings [11]. Biochemical findings: Calcium concentration is significantly low in the cattle with TRP whereas phosphorous concentration is slightly high. Hypocalcaemia can be due to decreased calcium up take because of any illness that affects the appetite and decrease its absorption. The high phosphorus concentration detected in the TRP patient may also be related to increased mobilization of calcium compounds from the body stores to compensate for hypocalcaemia [3]. Plasma fibrinogen levels are often elevated (>1000 mg/ dl, normal 300-600mg/dl) [12]. The most common chemistry abnormality associated with TRP is hyperproteinemia with hyperglobulinemia. Some authors suggest that a total serum protein concentration greater than 10mg/dl is highly suggestive of TRP [4].

Table 1: Biochemical parameters of cattle with traumatic peritonitis

Parameters	TRP group
Total protein (g/l)	Increase
Albumin (g/l)	Slightly the same
Globulin (g/l)	Increase
A/G ratio	Decreases
Total bilirubin (µ mole)	Increases
AST (U/L)	Increases
ALP (U/L)	Increases
Ca (mmol/L)	Decreases
P (mmol/L)	Increases

Sources: Gokce *et al*. [3].

Disruption of hepatic biliary circulation and alteration of hepatic function due to liver necrosis, inflammation and neoplasia impair the synthesis of coagulation factors, particularly factor VII, IX, X and XI [11].

Coagulation Parameters: Alteration in coagulation parameters including activated partial thromboplastic time (APTT) prothrombin time (PT), activity of anti thrombin III (AT-III) and the concentration of fibrinogen and fibrin/ fibrinogen degradation products are known to be associated with inflammation, sepsis and endotoxemia. The concentration of fibrinogen is higher in TRP patients and glutaraldehyde coagulation time is shorter than 5 min in the TRP patient animals indicating the severe inflammation [3].

Gross Lesions /Necropsy Finding: Localized traumatic reticuloperitonitis is characterized by varying degrees of locally extensive fibrinous adhesions between the cranioventral and the ventral aspects of the reticulum. Adhesions and multiple abscesses may extend to either sides of the reticulum involving the spleen, omasum, liver, abomasums and ventral aspects of rumen. Large quantities of turbid foul-smelling fluid containing clots of fibrin are usually present. Loops of intestine and omentum are commonly stuck together by thick layer of fibrin and intra abdominal abscessation [7]. Sometimes, there will be large masses of fluid pus in the pericardial sac.

Diagnosis

Metal Detection: Metal detectors were used at one time to aid in the diagnosis of traumatic reticuloperitonitis. Ferrous metallic foreign bodies can be detected with metal detectors but the instruments are of limited uses because most normal dairy cows are positive for metal over the reticular areas. An electronic metallic detector may identify metal object in the reticulum but does not distinguish between perforating and non perforating foreign body [13].

Laparoscopy: Laparoscopy in cattle is a promising tool for clinical diagnosis and treatment. The lower cost of the materials available in addition to the possibility of an intervention on an animal that is sedated does not entail more costs than an exploratory laparatomy. The application of this tool during abdominal explorations and biopsies allows the avoidance of invasive and often useless surgical interventions and even with the diagnosis and prognosis of certain conditions.

Ultrasonography and Radiography: In contrast to radiography, ultrasonography provides more precise information about the contour of the reticulum and reticular motility [7]. In cattle with TRP ultrasonography can be used to identity morphological changes in the region of cranial, ventral or caudal reticular wall. Radiography can help identity perforating foreign bodies in the reticular areas. With the animal standing, a horizontal beam is centered on the reticulodiaphramatic region in cranioventral/ caudoventral. Radiography obtained allows the identification if radiopaque foreign bodies and gas/ fluid interfaces typical of an intrabdominal abscess. The drawback of this technique is that not all heavy sharp objects will have sufficient density to show on an x-ray [13].

A Wither Pinch Test: Many gastrointestinal tract disease cause abdominal pain in the cow. Cow with gastrointestinal tract pain often stand hunched up with their elbow abducted. A normal will reflex her back ventrally when her withers are punched. A cow feels pain will not reflex ventrally. It is done by squeezing the cows back bone just above the wither. If the animal forcibly grunts, the pain can be localized to the front half of the cow.

Differential Diagnosis: False negative common reasons for abdominal pain are hardware abomasal ulcer or distention of small intestine with gas [1, 11].

A perforating abomasal ulcer can be distinguished from chronic TRP since a cow with chronic TRP is typically a febrile and has cranioventral abdominal pain where as a cow with a perforating abomasal ulcer typically has mid- abdominal pain [7] and may show evidence of gastrointestinal leakage, such as plant material, on abdominocentesis, microorganisms and/ or squamous cells in the abdominal fluid. The most likely differential diagnosis for and a febrile animal is indigestion and ketosis. Cow with indigestion or ketosis should be painful and ketotic cows will have ketones in their urine, as detected by dipstick analysis. Over all, the best differentiator of these diseases is total plasma protein level. Total plasma protein should be increased in cow with either ingestion and are less severely increased in cow with perforating abomasal ulcers [4].

Treatment: In general, two methods of treatments are used for TRP: conservatives (medical) treatment and rumenotomy [7]. Conservative (medical) therapy. Conservative treatment comprises immunization of the animal administration by of antimicrobial for the inflammation for 3-5days [7]. A magnet administered orally falls into the cranial sac of the rumen, but normal ruminal contraction usually brings the magnet to the reticulum and foreign bodies still partially in the lumen of the reticulum that have injured the reticular wall are attracted to and fixed to the magnets, thus preventing their migration from continuing and most times returning the foreign body into the lumen of reticulum [14].

Rumenotomy: Rumenotomy in cattle is a routine procedure for treatment and diagnostic purposes. Surgical removal of the foreign body through the rumenotomy incision is widely used as a primary treatment. The recovery rate varies depending on when the surgery is done relative to the time of initial penetration [7, 15].

Prevention: Prevention of hard ware disease in dairy cattle involves around managing animal feed and animal grazing areas so they avoid ingestion of heavy sharp object. Magnets should be installed in feed mills and forage harvesting equipments (baler). Bovine eating habits cannot be altered and prevention of sharp objects in the feed is not entirely possible, so prophylactic insertion of magnets at the early ages is a good idea [7]. Eliminating sources of sharp foreign objects in the feed supply prevents TRP. Installation of large magnets on feed handing equipment and prophylactic administration of the fore stomach magnets to all animal at 6to8 month of ages prevent almost all cases caused by magnetizable object [16].

Prognosis: Prognosis is the prediction of the final outcome of the disease. The prognosis in hardware disease varies with the amount of infection present, how long the condition has been present and the individual animal. The attending veterinarian considers several factors before making a final prognosis. As a general rule, 60 to 75 percent of affected animals can be returned to useful function if the disease is detected and treated early [7].

Complication: Reticular abscess are common complication of TRP. Also if the foreign body migrates through the diaphragm to the pericardium subsequent congestive heart failure and less common complication which includes reticular fistulation, vagal indigestion and diaphragmatic hernia will take place [4]. Perforation of the thoracic cavity may occur without perforation of the pericardium causing pneumonia and pleurisy. Rare perforation of one of the larger regional arteries may result in sudden death from hemorrhage and sudden death may also occur of the penetration of the myocardium or rupture of a coronary artery [10]. The acute local peritonitis causes immediate cessation of ruminal movements, however, persistent ruminal atony or irregular motility with gradual onset of bilateral abdominal distension, in appetence and decreased milk production may ensue clinically. This is referred to as vagus indigestion, it may also be sequel to abomasal displacement Mechanical impairment of reticular motility and esophageal groove dysfunction as a result of reticular adhesion is probably the most important causes of syndromes [7].

Traumatic Pericarditis: Perforation of the pericardial sac by a sharp foreign bodies originating in the reticulum causes pericarditis with the development of toxemia and congestive heart failure. Tachycardia, fever, engorgement of the jugular veins, anasarca, hydrothorax, ascites and abnormalities of the heart sound are diagnostic feature of the diseases [10].

Etiology: Traumatic pericarditis is caused by penetration of the pericardial sac by migrating metalic foreign bodies from the reticulum. The incidence is greater during the last 3 months of pregnancy and at parturition than at other times. Approximately 8% of traumatic reticuloperitonitis will develop pericardia and most affected animals die or suffer from chronic pericarditis and do not return to completely normal health [1].

Pathogenesis: Penetration of the pericardial sac may occur with the initial perforation of the reticular wall. However, the animal may had a history of traumatic reticuloperitonitis some times previously, followed by pericarditis, usually during late pregnancy or at parturition. Physical penetration of the sac is not essential to the development of pericarditis, infection sometimes penetrating through the pericardium from a traumatic mediastinitis [1, 7].

Introduction of mixed bacterial infection from the reticulum causes severe local inflammation and persistence of the foreign body in the tissue is not essential for the further progress of the diseases. The first effects of the inflammation are hyperemia of the pericardial surfaces and the production of friction sounds synchronous with the heat beats. Two mechanisms then operated to produce signs of toxemia due to the infection and the pressure on the heart from the fluid which accumulates in the sac and produces congestive heart failure [17].

Clinical Findings: Depression, anorexia, habitual recumbence and rapid weight loss are common. The animal stands movements are more obvious being mainly abdominal shallow, increased in the rate to 40-50/ min and often accompanied b grunting. Engorgement of the jugular veins and edema of the brisket and ventral abdominal wall are common [16, 17]. Edema of the sub- mandibles region and brisket and distended jugular veins are common [18]. Distended jugular and superficial abdominal veins and other signs of congestive right sided heart failure are most common after pericardial effusion. Dyspnea may occur if left- sided failure is also present [16].

Clinical Pathology

Hematological and Biochemical Findings: The most common abnormal laboratory findings that indicated inflammation is a high concentration of fibrinogen, total leukocyte count and total protein. Significant increase in total leukocyte (WBC) significant increase in the percentage of neutrophils and decrease in the percentage of lymphocytes are common hematological findings [11].

Necropsy Findings (Gross Lesions): In acute cases there is gross dispenser of the pericardial sac with foul-smelling grayish fluid containing flakes of fibrin and the serous surfaces of the sac is covered by heavy deposits of newly formed fibrin, pericardiocentesis yields foul- smelling and turbid fluid. A corklike fibrous sinus tract usually connects the reticulum in pericardial and additional lesion of Pleurisy and pneumonia is commonly present. In chronic cases the pericardial sac is grossly fibrous adhesions surroundings lesions of varying size which contains pus or thin straw- colored fluid [19].

Microscopic Lesions: Liver, spleen and lung section revealed variably sized abscess surround by a white zone

of fibroblast proliferation and connective tissue capsule sever fibrous tissue reaction, accumulation of degenerated polymorph nuclear leukocytes, macrophages and diffused fibrin fibers are seen in the pericardial sac and epicardium. Local fibrous tissue proliferation with numerous macrophages dominated the inflammation in the reticular. In microbiological examination, pure culture colonies of *Arcanobacterium pyogens* is recovered from affected organs and fluid in the thoracic cavity [11].

Treatment: The results of treatment are usually unsatisfactory but salvage of up to 50% of the cases can be achieved by long term treatment antimicrobials. Rapid onset of generalized edema represents a poor prognosis. Relieve the edema and respiratory embarrassment but relapse usually occurs within a few days. Selected cases of traumatic pericarditis have been treated satisfactory by pericardiotomy [7].

Prevention: Prevention depends on preventing TRP through management of the environment and administration of reticular magnets [16, 19].

Economic Significance: The disease in economically important because of the severe loss of milk production and the high mortality rate. In industrialized countries, metallic foreign bodies may be present in the reticulum in up to 90% of normal cattle and residual traumatic lesions may be present in as many as 70% of dairy cow. Among the clinically affected animals about 25% develop incurable complication and the rest 75% can be expected to recover completely [4, 7, 19].

Rumen Impaction in Cattle with Indigestible Foreign Bodies: Clinical rumen indigestible foreign bodies impaction is characterized by pale mucous membrane, complete cessation of rumination, impacted rumen, atony and reduced rumen motility, absences of stratification, hard pellet mucous dung and in appetence. Rumen impaction is a condition which results from the accumulation of the indigestible materials in the rumen with interfaces with the flow of ingesta leading to distension of the rumen and passing of scanty or no feces [20].

Hematological Parameters: Highly significant decrease in the hemoglobin PCV (packed cell volume) and total erythrocytic count with leukocytosis is and neutrophilia which may be due to dietary deficiencies, presences of foreign bodies and slouching, stunting, erosions inflammatory response and hyperplasia due to the pressure on the wall of the rumen caused by the foreign bodies [18, 20].

Biochemical Parameters: Highly significant increase in blood urea nitrogen (BUN) value may be due to faulty rumen fermentation and reduced microbial activity. Hypoproteinemia and hypoalbuminemia could be due to dietary malnutrition and stress reaction to infection. Hypocalcaemia might due to dietary deficiency and failure of calcium absorption due to reduced rumen motility. Hypoglycemia might due to inadequate intake of feed. Hypophosphate noticed in the affected animals might be associated with shortage of feeds perhaps especially of minerals and vitamins. There are significant alterations in blood urea nitrogen protein, albumin, calcium, glucose and phosphorus in the affected animals [18, 20].

Harmful Effect of Plastics in Cattle: The word plastic has its origin from the Greek word, "plastikos" which mean an able to be molded into different shapes. They are made up of long chain polymeric molecules and basic materials used for their manufacturing is extracted from oil, coal and natural gas. Plastic or polythene bags commonly known as festal in Amharic language are in common use as shopping bags for packaging food and others in Gondar city as well as other parts of country. Plastic bags along with other foreign bodies in cattle affect the health and cause economic loss to the owners [15].

Pathogenesis: Stray cows are generally seen on the roadsides eating a ways the plastic bags and their contents in search of food items [21]. The ingested polythene hinders the process of fermentation and mixing of contents leading to indigestion. They also obstruct the orifice between reticulum and omasum. If not removed through surgery polythene may become fatal. The plastic bags cannot be digested or passed as such through of aces by an animal. They stay in the gut causing pain and death when dead animal decay, they bags are freed and often eaten again by other animals and this cycle may continue for many continue for many years to came [21].

The toxic contents of plastic may also enter in man through milk produced by such cows. The foreign bodies like hard metal needles, wires nails and others are also disposed along with other house waste in polythene bags, which after consuming by cows may settle in reticulum giving rise to condition traumatic reticulopericarditis [7, 21].

Table 2: Hematological parameters in dairy cattle with rumen impaction

Parameter	Control	Rumen impaction
Hgb (g/dl)	10.18	7.44
PCV (%)	29.75	21.91
RBC(x10^6/ µl)	7.24	4.55
MCV (fl)	42.20	50.02
MCHC(g/dl)	34.83	34.94
MCH(pg)	14.37	16.88
WBCx10^3/ µl	66.78	19.93
Neutrophils x10^3/ µl	3.19	5.22
Lymphocyte x 10^3/ µl	7.96	6.02
Monocyte x 10^3/ µl	0.32	0.39
Basophils	0.03	00.20

Sources: Vanitha *et al*. [20].

Table 3: Biochemical parameter in dairy cattle with rumen impaction

Parameter	Control	Rumen impaction
BUN (mg/ dl)	25.62	46.85
Creatinin (mg/ dl)	1.66	1.57
Total protein (g/dl)	7.05	6.23
Albumin (g/ dl)	3.36	2.75
Calcium (mg/ dl)	10.92	8.36
Cholesterol (mg/ dl)	115.40	116.28
Glucose (mg/ dl)	62.10	42.78
Phosphorus (mg/ dl)	6.76	5.98

Source: Vanitha *et al*. [20].

The various pathological conditions are encountered due to plastic and polythene in animals are: Indigestion, impaction, tympany, polybezoars, traumatic pericarditis and immunosuppression [21]. The most common symptoms observed in the affected animal are bloat and exhibited by the abdominal bulging of the paralumbar fossa on the left of abdominal wall. The other clinical symptoms are depression; complete or partial anorexia followed by loss of body weight, ruminal impaction, reduction of milk yield and suspended rumination. Milk and weight reduction in affected animal is variably according to the stage of lactation, quantities of foreign bodies ingested and severity of the bloat. Acute bloat causes more pressure over the diaphragm and ribs which limits the respiratory movement, leadings to hypoventilation and decreased venous return to the heart. Lack of emergency and timely treatment of acute bloat may leads to cattle mortality. When conservative line of treatment fails to correct these aliments of the rumen, the only alternative is rumenotomy [15].

CONCLUSIONS

Ingestion of metallic and non- metallic foreign bodies The most common problem encountered in dairy cattle not only because of its mortality and morbidity but also it causessharp reducein milk production. It is common in developing countries where the standard of animal management is unsatisfactory. The most common problem encountered in dairy cattle due to the ingestion of the metallic and non- metallic foreign bodies are traumatic reticuloperitonitis/ pericarditis (hardware disease). It is the problem of both the small and large scale dairy farm. It was also summarized that the problem is very common in our country, Ethiopia and presents great impact on dairy animals and other types of animals.

Recommendations: Proper feeding management should be established in dairy farm, Large dairy farm owners should install large magnets on feed handling equipments and chopping machines, Keeping cattle away from the site of new construction and completely removing old buildings and fences, Early treatment and diagnosis should be made to avoid complication, Proper disposal of indigestible foreign bodies should be established in dairy farm, In order to save the life of animals, residents should not pack and throw the food items in plastic bags. So, Awareness must be created on wise disposal of plastic bags as well as the periodical cleaning of these wastes in the grazing area. Cattle owners may be advised not to allow their cattle to freely wander in streets especially in and around cities where massive construction is carried out. Grazing land pollution should be seen seriously to avoid the polythene and other wastes.

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